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ABSTRACT

The assistant director of a recently completed curriculum development project, career education activities for junior high and middle school students, describes a solution to the quality-control problem the project faced and the deliberation that went into the design of a procedure for the periodic review of the quality of all materials under development. Also discussed are issues faced in the deliberation, how they were addressed, and the consequences of the review procedures for subsequent conduct of the project. The paper was presented as part of a symposium exploring the value of retrospective accounts of curriculum deliberation as a source of knowledge about the curriculum development process. (Author/MLF)

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A Retrospective Analysis of the Development of a Project Monitoring System

by

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Introduction

This paper is a partial report of a 3 year (1973-1976) effort in curriculum development conducted by The Center for Vocational Education of The Ohio State University. Specifically, this report will address the procedures used for controlling the quality of products produced for the Occupational Exploration Program (OEP). OEP, which is now being published under the name "SEEK", was initially conceptualized in 1973 and completed in 1976.* The purpose of the project was to produce a set of transportable, publishable products that would enable junior high students to actively explore occupations in a variety of "hands on" activities in the classroom. Eight occupational cluster packages were produced. Each package consisted of a small group simulation (8-10 participants) and six additional activities for individual or small group use. In addition, a program introduction and nine teacher guides (one for each of the clusters and one for the introduction) were developed.

The cluster packages were designed for flexible implementation in varied and different classroom settings and are applicable to several subject matter fields. All packages utilized multiple audio visual techniques and contained a wide sampling of occupations with

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* "SEEK" which was co-developed by Norman Singer, James Altschuld and other staff members at The Center for Vocational Education, is scheduled for nationwide distribution in early 1977 by the National Computer Systems, Inc., Educational Systems Division, Minneapolis, Minnesota.

varied entry level requirements. Attention was given to the range of reading skills and ability levels found in any one classroom such that at least one activity in each package was designed to be above grade level in difficulty and one was below. To implement an entire package with most students completing all activities requires approximately 3-4 weeks of classroom time (45 minutes per day).

In the first year of the project, simulations were pilot tested in both 7th and 8th grade classrooms in the Columbus, Ohio area and in Jefferson County, Colorado. To capitalize on the findings and trends generated from the initial pilot test, an intensive and interesting internal product monitoring system was initiated in the second year of the project. The intent of this retrospective study is to describe why and how that monitoring system came about and what were its unique characteristics.

I. The Need for the Monitoring System - Recognizing the Obvious

Why did the need become obvious? It is perhaps striking that the monitoring system for OEP (SEEK) was only initiated late in the second year of the project. Four basic factors had a major impact upon making project personnel cognizant of the need. To begin with, the first year's scope of work was large and required the production of all simulation prototypes and their pilot testing. Limited time would have been available for controlling the quality of the products developed because of the pilot test schedule and the small staff size.

Secondly, the simulations pilot tested at the conclusion of the first year needed some revision based upon the input from the evaluation findings. Evaluation results indicated that numerous technical and conceptual problems could be identified and resolved prior to products

entering the classroom (Altschuld and Lave, 1975). It was also felt that additional products would benefit from review prior to pilot testing. Thirdly, because of the scope of work and the time needed to complete it (i.e., 56 products developed, pilot tested and revised at the end of the third year), it was necessary to reduce the number of revisions in any product or set of products.

The fourth reason is essentially the most important one. Midway into the second year of the project the staff, based upon a self initiated external review of the simulation prototypes by publishers and teachers; an extensive review of the literature; reconsideration of the clustering strategy employed; and the analysis of evaluation data generated in the first year, developed a revised program structure and a set of program guidelines or criteria. The revised program structure has already been indicated by the program description in the introduction to this paper. The guidelines have been described in an earlier presentation in this symposium.(Singer, 1977)

These four factors then served to sensitize project staff and, especially, project evaluators to the need for a quality control system. This was particularly evident after viewing the complexity of the revised program structure and guidelines and after summarizing strengths and weaknesses in first year prototypes. No one single event brought about this realization but rather the combination of factors as described above.

When did this take place? It occurred over a number of months from approximately the end of the first year until after the criteria were produced, which was midway into the second year.

Who were the main actors? To a limited extent all the project staff recognized the need. However, it was basically the two project evaluators who were most influential in bringing about group sensitivity. One of the evaluators was also assistant director of the project.

What actually happened? Aside from the factors described above, an explicit project decision was made to proceed with the development and implementation of a quality control or product monitoring system.

II. Developing the System

Why develop a system? The question has already been partially answered above. But additionally, it should be emphasized that the complexity of the developmental tasks as seen in the second year and the fact that the project was increasing in staff size and work scope necessitated that some sort of structured, but not overbearing system be instituted. This is very important in that the project wanted to produce highly innovative and unique materials for classroom use but at the same time did not want to lose sight of the overall nature and intent of the program. Unity of focus but not necessarily uniformity of individual product design was required.

Furthermore, by design the program criteria were not "hard and fast" statements; rather, they were general guidelines as to what the nature of the product should or could be. They contained statements of student outcomes, work factors to be included in products, general

program characteristics, and so forth. Detailed behavioral statements/ objectives for the program and specific products in particular were not, however, explicitly defined. Thus, it seemed that a project monitoring system would be a suitable mechanism for achieving unity of focus.

When did this take place? The development of the system started in approximately the sixth month of the second year of the project. The system was fully developed in prototype form by the 10th month of that year. Modifications in system elements occurred until approximately two months into the third year of the project.

Who were the main actors? The assistant director of the project, who was also a project evaluator, assigned responsibility for generating a draft of the monitoring system to a resident internal evaluator. The monitoring system was carefully reviewed by the assistant director and then with concurrence of the project director approved as the final version of the monitoring strategy. To a degree, greater involvement of all staff in this development process may have been desirable.

What actually happened? Two documents (An Introduction to Monitoring Curriculum Development and Monitoring Curriculum Development: General Review Guidelines) were produced as the basis of the system. (Lave, Altschuld and Singer, 1975 a and b) Initially, a brief review of existing literature was conducted and a literature summary was written. The literature seemed to provide insufficient leads as to what the specific details of a monitoring system should be. Generally,

little, if any, concrete hints were given as to how to go about monitoring product development and insuring product quality. Should checklists be used? Should internal or external panel reviews be conducted? How often and when should developing products be reviewed? Questions like these, although seemingly small in importance, loom relatively large as the issue of monitoring is considered.

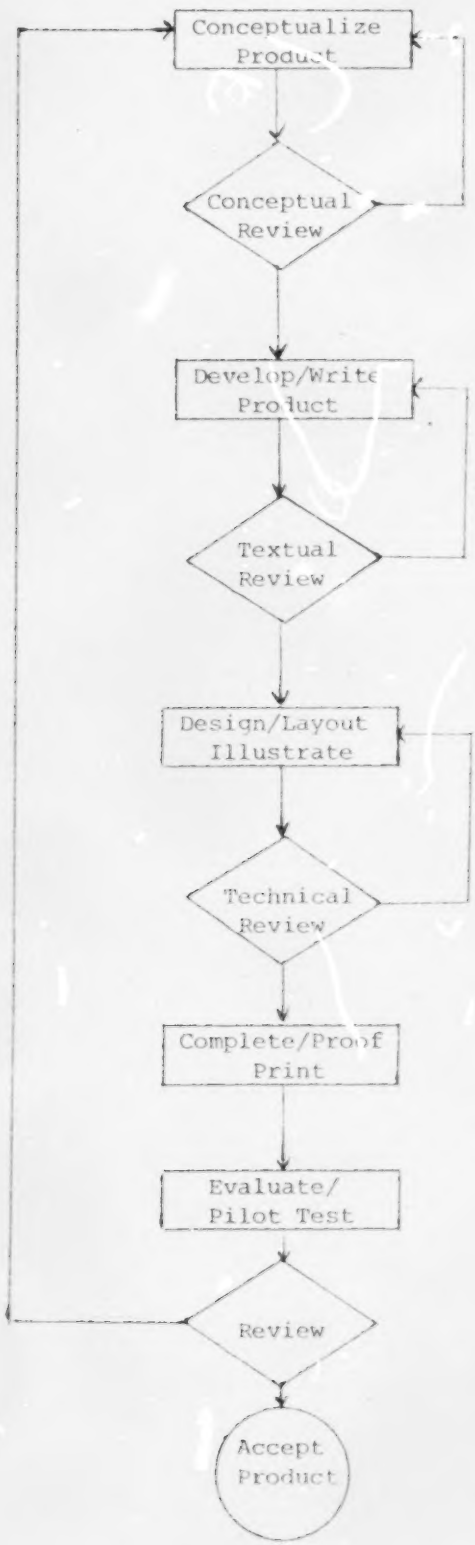
To resolve the dilemma, the evaluator and the assistant project director developed a set of objectives for a flexible monitoring system and a generalized flow chart which represented their best perceptions of the developmental life of a product. The objectives are stated below:

- To develop a system that assures at least an adequate "fit" of each product within the total cluster framework.
- To develop a system which helps to insure that the criteria are being met.
- To develop a system that will help to identify problem areas as well as to spot potential trouble spots before they become problems.
- To make developers (especially new staff members) aware of key decision points.
- To assure optimum interaction among all staff members involved in various components of the developmental process.
- To avoid the repetition of past mistakes.

The generalized flow chart is shown in Figure 1. The chart contains not only the major steps in development but an educated guess as to the frequency and type of reviews needed during product development. Three of the four reviews shown in the chart--conceptual, textual and technical--were assumed to represent a reasonable number of important reviews that would tend to enhance product quality and fit within the program context. Care was taken to avoid over burdening

Figure 1

Major Steps in the Developmental Life of a Product



the developmental process while at the same time providing for a reasonable assurance of product quality. The nature of the considerations for the three reviews is explained below by the use of sample review questions.

Conceptual Review: Does the product or set of products fit into the program? Is it feasible to produce this set of products? Does it seem like an interesting idea or set of ideas? Will it have appeal to 7th-8th graders? Will it have appeal to teachers? Does it fit the maturational level of early adolsecents?

Textual Review: Does the product as developed in draft form have a clear cut flow of ideas or theme? Is the product readable by 7th-8th graders? Are the directions clear? Will it maintain the interest of the students? Are the preliminary drawings integrated well with the text?

Technical Review: Are the illustrations and text in this semi-final product clear, well done and free of obvious racial, sexual, and/or ethnic biases? Are the directions clear and complete? Does the product flow smoothly from beginning to end? Are all concepts related to the maturational level of the learner?

Questions for the three reviews were developed from a critical analysis and examination of the program criteria. Only the most salient criteria were included as review questions. The second document produced at this time--Monitoring Curriculum Development: General Review Guidelines--contained lists of criteria-based questions for each review for each type of product within an occupational cluster package. The questions were not mandatory for a review but rather were, as the title implies, general review guidelines. The document also contained a set of procedures for conducting a review and a sample completed review.

There are several unique features in this review process which should be stressed. First, the review process was considered to be part of the product developmental cycle not a separate entity. The conceptual review best illustrates this point inasmuch as it was not a review of material but a first critical analysis and evaluation of ideas--no products were involved. Secondly, the process was internal to the project. Thirdly, a partially (some of it just happened) explicit decision was made to involve all staff in the monitoring process. Review teams were composed of project staff members who were not working on the individual product under review. This method hopefully enabled all staff to become "involved" and to internalize the criteria of the program. The assistant project director and/or the project director were included in most of the first reviews conducted in the project. This small, on the surface, difference (i.e., involving all staff in the reviews) may in reality be a sizeable one when compared to other forms of review strategies.

III. Implementing the System - The Critical Impasse

Why is it important to discuss something that appears to be so mundane as system implementation? The simplest answer to this question is that the implementation of the system proved to be extremely difficult and in some instances threatened to tear apart meaningful project interactions. Indeed some interpersonal relations were cool from the point of system initiation until virtually near the end of the project. It is further hypothesized that this type of occurrence is not isolated solely to the development of the Occupational Exploration Program (SEEK) but happens when you have a certain type of

critical mass. The critical mass consists of highly innovative/ creative individuals who are used to operating independently and who, rightly or wrongly, view something like a review as a potential infringement on their creativity and almost as an attack upon them personally. Add to this situation the need for program unity and the fission equation is nearly complete.

When did this occur? The major events in this period started to occur in the 10th-11th month of the second year and continued into the very early part of the third year.

Who were the main actors? In a sense, all the project staff were actors in this situation. Some particular focus will be given to the actions of the project director and assistant director and the resident internal evaluator in the description of what actually happened.

What actually happened? The review process was fully initiated after a rather intense period of deadline impending production. Staff nerves were on edge and frayed. The first reviews did not go especially well (formatting may have been a minor problem) and did not receive the full backing of project administration--at least in the eyes of project staff. At several reviews, tempers "flared" or came quite close to flaring. Some staff began to regard the review process as a potentially destructive one. At least one staff member and possibly more privately asked the project director to delete the three reviews from the set of developmental steps. In turn, via a memorandum directed to the attention of the assistant director and evaluator

the project director asked that the review system be put on a temporary hold. In this memorandum, mention was also made of the results of a brief questionnaire completed by project staff.

This questionnaire was developed by the evaluator and was based upon the growing concern of both the evaluator and the assistant project director regarding the review process. The results were surprisingly positive and reflected not so much an acceptance of the process but perhaps more of a recognition of the need for and value of a review system. Moreover, the structure of the system, three reviews, was overwhelmingly supported. Formatting of the reviews, however, clearly needed to be improved.

After much discussion of the concerns of individuals and the questionnaire results, the project director and the assistant director came to the following decisions:

1. The review process must be continued as an integral part of the developmental cycle.

2. The format of the review themselves should be modified. (Product developers should have a clearly defined period of time to present their rationale for the specific nature of the product. Both strengths and weaknesses of the product should be identified. If possible, concrete suggestions for changes should be given by the reviewers).

3. Implicitly and/or explicitly it was necessary to reinforce the concept that reviews were a mechanism for enhancing product quality and not an arena for personal discord.

During the next several sets of reviews, the project director and assistant director made every effort to be fully involved in the review process and thus to stress the importance of and need for the system. The resistance to the system waned.

IV. Impact of the System

The impact of the system can only be partially assessed by objective means. A number of the simulations were tested prior to the review process being initiated and again after revision using the product monitoring system. Student questionnaires, teacher questionnaires and teacher panels and/or interviews were used to collect data. The problems identified in the simulations are briefly summarized in Table 1. Clearly the review process (and probably the growth in developers' skill) had an effect on the quality of the simulations.

The pilot test results from other products produced for the program in the last year of the project showed generally favorable student acceptance data (65-75% positive responses). This, it should be emphasized, is from products developed after the monitoring system was started. The lack of pre and post data makes causal inference especially difficult in this situation. However, it is probable that the review process was one major factor contributing to the overall success of the program and its products.

There are several unobtrusive observations that also attest to the success of the system. First, an almost informal review process began to operate on the project whereby developers sought assistance and critical reviews from other developers prior to a formal review. This was not done, in the judgment of the authors, to reduce the intensity of the reviews but more from the enhanced understanding and perceptions of the developers regarding the review system and the value of multiple inputs into the developmental process. Another set of observations came from publishers who examined the program and saw

Table 1

Problems Found in Simulations Prior to and After the Initiation of the Review Process

Prior to Review Process	After the Review Process
Problems	Problems*
1. Poor, incomplete directions	1. Poor, incomplete directions
2. Non-motivational entry	2. Non-motivational entry
3. Ineffective summary	3. Ineffective summary
4. Lag time within some roles	4. Lag time within some roles
5. Excessive reading	
6. Reading level too high	
7. Excessive complexity	
8. Role shifting or forced role change	
9. Excessive equipment demands	
10. Poor illustrations	
11. Difficulty in role location	

* These four problems were noted but to a lesser degree than before the review process was initiated.

it as well done, well thought out, and publishable. The opinions expressed by publishers in the external review conducted early in the project (see Section I) were much less favorable.

V. Related Literature and Reflections of the System Developers

No attempt will be made in this paper to summarize either the literature related to the development of curriculum monitoring strategies or that related to the methodology of retrospective historical types of studies. For the purposes of OEP (SEEK), the two monitoring documents described earlier contain a somewhat adequate review of the literature. With regard to retrospective studies, it is not the intent of this report to extend the level of methodological understanding in the field. As numerous authors (including Wise in the initial part of this symposium) have noted there are two basic processes used in retrospective analysis--introspection and observation. (Wise, 1977) Introspection is simply the recalling or remembering of events. Observation is the process of analyzing project documents and records. The previous portions of this report do reflect a blend of the two approaches.

According to Wise, the type of account and deciding what to recount are additional considerations in doing retrospective analyses. He suggests two types of accounts--narratives dealing with strategic thought processes and descriptions dealing with major problem situations. What to recount deals with such factors as problems which illuminate how a curriculum deliberation proceeded, episodes based on illustrative curriculum models or concepts, and the solution of particularly difficult problems. Three of the first four sections of this study are

narrative in approach and the fourth basically focuses in on critical problem situations. It is more difficult to classify what is being recounted. The first two sections seem to center in on the concept of how deliberations proceeded with the next section dealing with a critical incident type of situation. The fourth section--Impact of the System--appears to best relate to the idea of an important curriculum concept, i.e., evaluating the effectiveness of procedures. All four sections were seen as the major events in the development and implementation of a monitoring system for OEP (SEEK). To a degree they are viewed as the necessary conditions of the system.

There is other literature that has importance for this analysis. Walker, in a thought provoking article entitled "A Naturalistic Model for Curriculum Development" criticizes classical models of curriculum development as being primarily "reconstructed logic" rather than "logic in use." (Walker, 1971) Walker proposes a curriculum development model consisting of three elements--curriculum platform, deliberation and design. There is a relationship of Walker's model and the OEP (SEEK) experience. The point at which OEP criteria came into existence is directly analogous to the idea of platform, that is, those ideas, beliefs, etc. that guide the development of the curriculum. In fact, the criteria might be thought of as a refined platform after initial deliberation and tryout. The deliberation phase while not totally analogous to the development and monitoring phase of OEP does seem to be embody many of their elements. The design is the final product resulting from the deliberation of the platform.

In a slightly different approach, Schwab focuses not so much on a model of development, but on the process by which ideas are translated into curriculum (Schwab 1973). He points out that the curriculum manager must frequently serve to meld together diverse individuals with differing points of view and that those many points of view should be reflected in the curriculum. As noted before, this observation is directly applicable to the OEP (SEEK) experience. He, like Decker, also describes a deliberation phase in curriculum development and notes that it is at this point that usually the important and necessary group working relationships are formed.

Palmer, in "Formative Research in the Production of Television for Children," briefly described the organizational and interpersonal factors that entered into the production of "Sesame Street." (Palmer, 1974) What Palmer is referring to is a climate or atmosphere in which rigorous formative research or evaluation can take place. He emphasizes that the clearcut delineation of responsibilities, roles and purposes which was made essentially at the beginning of the Sesame Street endeavor, tended to foster a positive feeling of cooperation among the staff. He also notes that formative research (his term) never takes on an adversary role but rather it is an integral part of the development process.

From the perspective of OEP, Palmer is making an especially strong point: The research climate in OEP was poor at the time that the project monitoring system was initiated. The system exacerbated tensions and was not perceived as part of the development process. Retrospectively, the memory of this difficult period remains quite vivid to both of the authors. To overcome it or to avoid such a problem it

would be wise to involve staff earlier in the development of the system and to add more structure to the actual panel review procedures. They were just too "free floating" initially and led to ambiguity.

On the other hand, once the system was fully installed, staff could feel involved in a series of products rather than being isolated in a small set of products. They were able to obtain a better understanding of the project as a whole and to see ideas that could be incorporated into their own products.

Another observation of the authors is that the following steps (Figure 2) are necessary for conceptualizing and developing a system for monitoring curriculum development. With these steps in mind, rather than summarizing the paper the authors would like to leave the reader with a series of questions. Is this the most cost-effective way of monitoring curriculum development? What is a reasonable blend of monitoring and pilot testing strategies? Is a top down review system any better or any worse than the one described earlier? Is a group consensus stifling to personal initiative? Would a lesser number of reviews have sufficed? To what extent does this process slow down production?

Obviously, this is a fruitful area for substantive research with potentially large practical implications. For example, it would be possible to generate a list of practical "do's" and "don't" for those individuals charged with monitoring curriculum development and devising quality assurance techniques. Costs associated with various levels of product quality could be determined and then used in project planning. Revision time versus review time tradeoffs could be assessed and carefully examined prior to initiating an overall project strategy. These ideas are a sampling of the questions that could be resolved through research.

Figure 2

Steps in Monitoring Curriculum Development

I. Generate Program/Product Criteria

II. Identify Key Points in the Development Cycle of a Product

III. Generate Criteria Based Questions Related to Key Points

IV. Devise Review Strategy

A. Who?

Management?

Evaluation?

All Staff

B. What Format?

Group?

Individual?

BIBLIOGRAPHY

1. Altschuld, J. W. and Lave, J. S. "Preliminary Trends Analysis from Evaluation Data Collected in 1973-74." An Occupational Exploration Program, Working Paper submitted to the National Institute of Education, February 1975.

2. Singer, N. M. "A Retrospective Analysis of the Development of Program Criteria." A paper presented at the 1977 Annual Meeting of the American Educational Research Association, New York, New York, April 8, 1977.

3. Lave, J. S.; Altschuld, J. W. and Singer, N. M. "Introduction to Monitoring Curriculum Development." An Occupational Exploration Program Working Paper submitted to the National Institute of Education, March 1975 (a).

4. Lave, J. S.; Altschuld, J. W. and Singer, N. M. "Monitoring Curriculum Development: General Review Guidelines." An Occupational Exploration Program Working Paper submitted to the National Institute of Education, February 1975 (b).

5. Wise, R. I. "A Case for the Value of Retrospective Accounts of Curriculum Development." A paper presented at the 1977 Annual Meeting of the American Educational Research Association, New York, New York, April 8, 1977.

6. Walker, D. F. "A Naturalistic Model for Curriculum Development" School Review, November 1971.

7. Schwab, J. J. "The Practical 3: Translation into Curriculum." School Review, August 1973.

8. Palmer, E. L. "Formative Research in the Production of Television for Children." in Olson, D. R., Ed., Media and Symbols: The Forms of Experience, Communication and Education. 73rd Yearbook of the National Society for the Study of Education, Chicago: University of Chicago Press, 1974.